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Education and Dimensions of Social Capital: Do Educational Effects Differ due to Educational Expansion and Social Security Expenditure?

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To what extent does education affect formal and informal social capital, what is the influence of educational expansion, and welfare state contexts, and to what extent do educational effects on social capital differ under varying educational expansion and welfare state contexts? Multilevel estimates on 28 nations from the Eurobarometer (62.2; 2004) reveal that educational attainment increases all indicators of both formal and informal social capital except one: contact frequency with one's neighbours. We attributed this latter finding to the existence of a localist orientation among lower educated individuals. The higher educated profit from socialization at home, at school, and through their social networks in terms of social capital. There are no consistent patterns that show that in countries with a high level of educational expansion and social security expenditure, levels of formal or informal social capital are on average lower or higher. Cross-level interaction estimates, however, strongly suggest that educational expansion decreases educational differences in both formal and informal social capital. These findings suggest that individuals are motivated and recruited through networks to become socially active.

Education and Dimensions of Social Capital: Introduction and Questions

In comparative studies, social capital is put forward as a major explanation for a wide range of societal phenomena, varying from lower crime rates to better democracies, and higher economic growth rates (Putnam, 2000; Uslaner and Dekker, 2001; Halpern, 2005). After reviewing debates on conceptualizations of dimensions of social capital, Pichler and Wallace (2007) recently proposed to distinguish two dimensions: formal and informal social capital. Formal social capital refers to participation in formally constituted civic organizations (Putnam, 2000; Schofer and Fourcade-Gourninchas, 2001), informal social capital refers to social ties between individuals and their friends, families, colleagues, and neighbours (Bourdieu, 1983; Coleman, 1988; Burt, 2001; Lin *et al.*, 2001). Pichler and Wallace (ibid.) provide cross-national evidence—previously conspicuous by absence—that these two dimensions are related to each other. In the Nordic countries and the Netherlands, averages are high on both formal and informal

social capital. Southern European people, on the other hand, score low on both, whereas in Eastern Europe high levels of informal social capital substitute low levels of formal social capital. We aim to further this knowledge on the dimensions of social capital by simultaneously focussing on individual level and national level determinants, taking advantage of advanced methods to analyse recent cross-national data covering most of Europe.

Empirical evidence suggests that human capital, notably educational attainment, increases formal social capital (Putnam, 2000; Bekkers, 2005; Gesthuizen, 2006). However, studies included education merely as a confounding factor (Curtis *et al*., 2001; Schofer and Fourcade-Gourninchas, 2001; Bekkers, 2005; Van Oorschot and Arts, 2005; Ruiter and De Graaf, 2006), neglecting the theoretical knowledge on the relationship between education and social capital. For the relationship between educational attainment and informal social capital evidence is less consistent (Scheepers and Janssen, 2003). Some studies found a negative relationship between educational attainment and contact with family members, and a non-significant relationship between educational attainment, and contact with friends (Scheepers *et al*., 2002; Kääriäinen and Lehtonen, 2006). Yet, other scholars found the opposite: highly educated individuals had more contacts with both friends and family (Van Oorschot and Arts, 2005). It is important to know the extent to which and why education affects dimensions of social capital to a varying degree. Therefore, we set out to find an answer to our first research question: *To what extent does individual educational attainment affect dimensions of* (i) *formal social capital, and* (ii) *informal social capital?* From general sociological theories, we derive hypotheses on uniform or differential education effects.

Here, we also connect to research that addresses national level determinants that explain country level differences in formal and informal social capital. Much of this research assesses country differences in formal social capital (Schofer and Fourcade-Gourninchas, 2001; Dekker and Halman, 2003; Ruiter and De Graaf, 2006), much less is concerned with country level differences in informal social capital (Scheepers *et al*., 2002; Van Oorschot and Arts, 2005). The observation that research on both dimensions is scarce, recently urged Pichler and Wallace (2007) to look at differences between groups of countries. However, they only addressed them at the macro-level, leaving aside the possibility that they might arise from compositional differences between populations. We opt for further rival explanations of these country differences by considering macro-level determinants previously proposed and related to educational expansion (Curtis *et al*., 2001) and welfare states (Scheepers *et al*., 2002; Van Oorschot and Arts, 2005; Kääriäinen and Lehtonen, 2006), while controlling for other macro-level characteristics (GDP, income inequality, and democratic history), and compositional differences of populations. Thus, our second research question reads: *To what extent do country's characteristics, like educational expansion and social security expenditure, influence individual' level of formal and informal social capital?* In comparative research, there is the actual possibility to assess the extent to which the impact of educational attainment varies cross nationally. Hence, our final research question ties the relationship between education and dimensions of social capital at the individual level to contextual differences between European nations: *To what extent does the relationship between education and dimensions of social capital vary under conditions of educational expansion and social security expenditure?*

In this article, we will thus propose and test hypotheses on the impact of education on dimensions of social capital under varying levels of educational expansion and welfare states regimes. By estimating multilevel models for 28 countries from the Eurobarometer 62.2 survey (2004), we will not only contribute to the recently expressed urge of increasing our understanding of why social capital levels differ between countries (Curtis *et al*., 2001; Hodgkinson, 2003; Putnam, 2007), but also broaden our knowledge as to how national level factors determine, respectively, condition individual level behaviour.

Theories: The Impact of Educational Attainment on Dimensions of Social Capital

As our goal is to test the extent to which education consistently influences dimensions of social capital, we start from two broad sociological perspectives: the socialization perspective, and the resource perspective. We use specific parts of these perspectives to come to hypotheses on the relationship between education and dimensions of social capital. The socialization perspective provides us with propositions from which we derive that there are uniform effects of educational attainment on dimensions of social capital, while the resource perspective leads to the prediction of differential educational effects.

Central to the *socialization perspective* is that formal and informal social capital originate from the extent to which individuals have been subject to the general norm of dedication to the collective good.

Durkheim (1922) stressed that society can only survive as long as among its members there is a sufficient level of cohesion. According to Durkheim, ideal citizens develop competencies and subsequently internalize norms to participate in public spheres. Parents and teachers play an important role in this process. Particularly, education teaches pupils moral values, that is, 'how one should act on behalf of the collective interest' (Durkheim, 1925, p. 59). Contemporary educational studies show the central position in school curricula of educating pupils to become good citizens (Cogan and Morris, 2001; Solomon *et al*., 2001; Torney-Purta *et al*., 2001). There is a high level of cross national consensus that being a good citizen means, among others, taking part in activities that promote human rights, protect the environment, and benefit people in the community (Torney-Purta *et al*., 2001, p. 80). These are all activities that show dedication to the collective good, and directly refer to formal and informal social activities.

Thus, in adolescence parents and teachers at school are important socializing agents. How can educational differences in dimensions of social capital be explained? Firstly, higher educated individuals are most likely to have higher educated parents (Blau and Duncan, 1967). As highly educated parents have participated in the school system relatively long, and, therefore, are often socially active themselves (De Graaf *et al*., 2000), and children are known to imitate their parents' behaviour (Bandura, 1986), it can be deduced that higher educated individuals are more likely to be socially active. Both Bekkers (2007) and Gesthuizen (2006) found empirical evidence for this intergenerational transmission of social capital. Furthermore, as argued earlier, at school students do not only learn about society and other cultures, but also learn social skills, and in this educational process internalize the dominant norm of dedication to the collective good (Durkheim, 1922, 1925; Cogan and Morris, 2001; Solomon *et al*., 2001; Torney-Purta *et al*., 2001). Insofar, as the internalization of this general norm determines a higher extent of formal and informal social activity, educational differences can be explained by the notion that the higher educated, as compared with the lower educated, have had a longer socialization into this dominant norm of dedication to the collective good.

In adulthood, this socialization effect is likely to be reinforced within social networks. (Wilson and Musick, 1997). The reason is that within many types of smaller and larger social networks, higher educated people are likely to interact with other higher educated people, while lower educated individuals often interact with other people who are less well qualified (Kalmijn, 1998; Lin, 1999). Research on partner and network effects shows that characteristics of network members independently affect social activity. It has been found that having a higher educated spouse stimulates organization membership (Gesthuizen, 2006), while having a partner who attends church positively and independently influences the intention to donate to the poorest countries (Reitsma *et al*., 2006). To the extent that educational homogamy occurs within social networks and lower educated individuals are less likely than higher educated people to be active formally and informally, the former are less likely to get stimulated by their social network to become socially active than the latter.

In sum, via socialization processes at home, at school, and in social networks, educational attainment fosters both formal social capital (donations to, membership of, and volunteering for organizations) and informal social capital (contact frequency with friends, colleagues, and neighbours, and giving informal help) (*uniform educational effect hypothesis*).

However, another socialization explanation leads to an alternative uniform effect hypothesis. In a meanwhile classic study, Merton (1968) proposed that individuals differ in their *orientation toward their social surroundings*. Localist people mostly focus on their direct local environment, are geographically relatively immobile, and are involved in small social networks of people that are physically close to them. As neighbourhoods, and maybe streets even more so, are economically segregated units (Jargowsky, 1996), lower educated individuals persist social interaction with people who are like themselves. Cosmopolitans, instead, look at the world from a broader perspective and are less intensely focused on their neighbourhoods or streets (Merton, ibid.). Gabennesch (1972) and Roof (1978) observed that particularly a low level of education strongly determines a localist orientation. They argued that a lower level of educational attainment drives this restricted social perspective, which explains why lower educated people are generally more exclusionistic towards outgroups (Konig *et al*., 2000). Within these networks, the norm of dedication to the collective good, therefore, is more likely to pertain to one's close neighbour, and not so much to society in general.

To the extent that this localist orientation is common to lower educated people, we might expect particularly high levels of contact frequency with one's neighbours for the lower educated, while for the other forms of social capital, which are less often associated to local surroundings, we expect higher levels for the higher educated (*localist orientation hypothesis)*.

The *resource perspective* leads to a differential education effect hypothesis, which follows the formal–informal distinction (Pichler and Wallace, 2007).

Coleman (1988) states that forms of capital—physical, human, social—can be seen as resources that—to a lower or higher degree—are available to individuals, to be utilized to achieve certain goals. When people lack one form, compensation is possible by investing in other forms. As people differ in the kind of resources they have (access to), the types of capital they invest in and the goals they pursue, might be completely different. According to Bourdieu (1983) the higher educated use social participation in formal social circles to perpetuate their status position. As formal social activity can considered to be publicly more visible than informal social activity, arguably the higher educated might be more prone to invest in the former. It could be argued that for the lower educated the opposite holds. As they lack resources to invest in publicly visible collective goods and actions that would increase their social status, they might compensate by investing in intimate ties and offering emotional and instrumental support within their informal social network.

Thus, following the distinction that Pichler and Wallace (2007) make, the resource perspective predicts that educational attainment is positively related to formal social capital (donations to, membership of, and volunteering for organizations), and negatively related to informal social capital (contact frequency with friends, colleagues, and neighbours, and giving informal help) (*differential educational effect hypothesis*).

National Context and Dimensions of Social Capital

An expanding body of research provides perspectives on how national contexts affect informal (Scheepers *et al.*, 2002; Van Oorschot and Arts, 2005; Kääriäinen and Lehtonen, 2006) and formal social capital (cf. Curtis *et al.*, 2001; Schofer and Forcade-Gourninchas, 2001; Ruiter and De Graaf, 2006; Badescu and Neller, 2007). We further explore the impact of educational expansion and social security expenditure.[1]

As countries industrialize, their citizens become more highly educated and thus countries reach a higher level of educational expansion (Treiman, 1970; Shavit *et al.*, 2007). To what extent would we expect educational expansion, beyond the individual level effect of educational attainment, to affect average levels of dimensions of social capital? If it is the case that socialization processes at home, at school, and in social networks stimulate both dimensions of social capital, we would expect that in countries where the ratio of higher educated versus lower educated people is much in favour of the first, the dominant norm of dedication to the collective good is more prevalent than in countries with a lower level of educational expansion. Therefore, the more countries have experienced educational expansion, the higher the rate of formal and informal social capital will be (*positive educational expansion effect-hypothesis*).

The claim that *welfare state regimes* erode social capital—the crowding out hypothesis—has frequently been put forward since De Tocqueville. 'Social expenditures and comprehensive social programmes ''crowd out'' informal caring relations and social networks, as well as familial, communal and occupational systems of self-help and reciprocity, [...] leading to a general decline of commitment of civil norms, of participation in civil society, and trust in fellow citizens and social institutions' (Van Oorschot and Arts, 2005, p. 6). For formal social capital, the empirical evidence is inconclusive. Van Oorschot and Arts (2005) found that more social security expenditure diminished levels of interpersonal trust and political engagement.[2]

Alternatively, high levels of social security expenditure might add to the development of a national norm of social solidarity: the importance of helping people in need (Curtis *et al.*, 2001; Kääriäinen and Lehtonen, 2006), which pertains more to informal social capital. Again empirical evidence is inconclusive. Scheepers *et al.* (2002) found that social security expenditure negatively influenced contact frequency with family and friends. However, their research had to be restricted to older people, and they did not control for other, possibly confounding country characteristics. Van Oorschot and Arts (2005) found that more social security expenditure increased informal social capital (contact frequency with friends and family). Since evidence is inconclusive, we test two opposite hypotheses: the more countries spend on social security, the lower the levels of formal and informal social capital[3] (*crowding out-hypothesis*) versus the higher the levels of formal and informal social capital (*social solidarity-hypothesis*).[4]

Differential Educational Effects? Tying National Context to Educational Attainment

We take one step further by specifying national conditions under which the effects of education on social capital may vary. We borrow from theories that purposed that people who are integrated in networks where many are likely to contribute to the collective

good, will become more likely to do so themselves. Ruiter and De Graaf (2006) found that non-religious people are more likely to volunteer in religious nations, and attributed this to the finding that in these countries inactive citizens are more likely to have active people within their social networks. To the extent that in countries with a high level of educational expansion, lower educated people are more likely to interact with higher educated individuals—and given that the higher educated are socially more active than the lower educated—in these countries higher educated individuals are more likely to recruit lower educated individuals for social activities. In these countries we, therefore, expect the differences in social capital between higher and lower educated people to be smaller as compared with countries with a lower level of educational expansion (*recruitment through networks hypothesis*).

Building on the 'stigmatisation by negative selection' argumentation, we derive an opposite hypothesis. Recent research shows that both in West Germany (Solga, 2002) and in the Netherlands (Gesthuizen and Kraaykamp, 2002; Gesthuizen *et al*., 2005), a downside of educational expansion is that the group of lower educated people suffers from negative homogenization regarding cognitive abilities and parental background. If lower and higher educated people become less alike (in terms of social class and of social, cultural, mental, and attitudinal characteristics), lower educated people may have become increasingly unlikely to be considered as valuable social network members. In countries with a high level of educational expansion, the lower educated would actually be *less* likely to be motivated and recruited by higher educated individuals, which results in a stronger relationship between education and dimensions of social capital (*negative homogenization hypothesis*).

According to the crowding-out hypothesis, networks and norms to help each other may be subject to erosion in highly developed welfare states. One might expect this to diminish the drives for people with many human resources—that is, the highly educated—to help out the less privileged. Furthermore, in highly developed welfare states the less privileged actually might need less help, so that there is less need for them to develop interpersonal contacts with individuals who have the resources to help them. Vice versa, in liberal welfare states, the drives for the privileged to help out the less privileged might actually still be present. Recently, Scheepers and Te Grotenhuis (2005) provided evidence for this hypothesis, showing that highly educated people in liberal welfare states (e.g. Great Britain) donate more to alleviate poverty than highly educated in any other welfare regime. Thus, the relationship between education and dimensions of social capital might be weaker in strong welfare states (characterized by higher social security expenditure) and stronger in weaker welfare states (*privileged people maintain charity hypothesis*).

Data and Measurements

We use the Eurobarometer survey 62.2, which was conducted in November–December 2004 in 29 countries.[5] Approximately 27,000 people were interviewed face-to-face, via a questionnaire that was designed to cover, among others, a broad range of social capital questions. After exclusion of one country and missing values, we estimate our models with about 24,000 respondents. Samples were drawn according to a multistage random design. First, administrative regions were drawn proportional to population size and density, after which a cluster of random starting addresses was drawn. Further addresses were selected by a random walking procedure, and finally a random procedure was applied to select the respondent at the final address. Sizes per country are on average a 1,000 individuals older than 15, although for some smaller countries[6] it was half that size. The samples are representative at the country level.[7]

Dependent Variables: Formal and Informal Social Capital

Our selection of informal social capital variables contains three questions on contact frequency and one on informal social support. Contact frequency with *friends*, *colleagues*, and *neighbours* are coded in 'never', 'less than a month', 'once a month', 'several times a month', 'once a week', and 'several times a week'. The Eurobarometer survey did not contain a question on contact frequency with family, so that in this case findings cannot be compared with other research (Scheepers *et al*., 2002; Van Oorschot and Arts, 2005; Kääriäinen and Lehtonen, 2006). *Giving help*, a measure of informal social support, was asked as follows: 'And in which of the following situations did you, yourself, help or support friends, neighbours, or other acquaintances in the past twelve months?' Eight possible situations were provided.

Respondents were also asked to which kinds of organizations (14 possibilities such as a business or professional organization, or a charity or personal aid organization) they donated money, were member of, or actively participated in. For active *participation in organizations* we counted all possible organizations to come to our final measurement, but for *donations to*

organizations and *membership of organizations*, we excluded trade unions and church memberships, because in some Scandinavian countries it is more 'a matter of necessity or administrative practice than a voluntary choice' (Van Oorschot and Arts, 2005, p. 11).

We purposefully refrain from creating dimensions through factor analysis. We are interested in the empirical question whether the relationship between education and dimensions of social capital differs for (indicators of) dimensions of informal and formal social capital. *A priori* clustering the indicators would disable us to test for possible differential effects *within* dimensions of social capital. Testing the localist orientation-hypothesis would then, for instance, be impossible. An additional advantage is that we can judge construct validity: if indicators measure the same construct, we would expect education to have uniform effects within dimensions of social capital.[8]

Independent Individual Variables

The central independent variable in our study is *educational attainment*. In the Eurobarometer, as in other internationally comparative studies such as the World Value Survey, education is measured as the age at which the respondent left fulltime formal education. We included it not only as a metric measurement, but also checked whether its relationship with our dependent variables was actually linear (by estimating models with dummy variables; 14 or younger, 15–18, 19–22, 22, or older). Since in all cases, except one (contact frequency with friends), the relationships proved to be linear, we present models using the linear measurement of education.[9]

We include the following independent variables (see also Putnam, 2000; Halpern, 2005): *gender* (0 is male, 1 is female), *age*, *urbanization, employment status*, and *marital status*. We linearly transformed age, so that it starts with the value 0, and one unit expresses 10 years. We also included age squared. *Urbanization* is coded in 'rural area', 'small city', and 'large city'. Gender, age, and urbanization might be seen as common determinants of both education and social capital. Including them should lead to reductions of educational differences in social capital, and reductions in the differences between countries. The following variables might be considered as intermediating factors between educational attainment and social capital. *Employment situation* contains the following categories: 'professional', 'other white collar', 'skilled manual worker', 'unskilled manual worker', 'self employed', 'housekeeping', 'unemployed', and 'retired'. *Marital status* distinguishes 'married', 'single', 'divorced', and 'widowed' people.[10]

Independent Contextual Variables

At the country level, we include *educational expansion*. This is the percentage of people that left fulltime formal education at age 19 or older (the higher educated), divided by the percentage that left education at age 18 or younger (the lower educated). We considered one measure to be at the core of welfare state regimes: the *percentage of GDP spent on social protection* (Eurostat). To control as much as possible for unobserved heterogeneity at the national level, we also included *national wealth, income inequality*, and a country's *history of continuous democracy*. For the first we used GDP in 2004. Eurostat provides a relative measure, in which EU25 is fixed at 100 and the values for the individual countries are calculated in relation to this branching point. Inequality is 'the ratio of total income received by the 20 per cent of the population with the highest income (top quintile) to that received by the 20 per cent of the population with the lowest income (lowest quintile)' (Eurostat).[11] To calculate the history of continuous democracy of European countries, we subtracted the most recent year in which democracy was constituted in the country from the year of data collection. This approach distinguished most western and northern European countries (except West Germany) not only from the former communist countries (like East Germany, the Baltic states, Poland, Bulgaria, and Romania) but also from the countries that lived some time under militaristic regimes in the late 1960s and 1970s (like Portugal, Spain, and Greece). For all contextual characteristics we subtracted the average score, so that the average value is zero. All descriptive information can be found in Table 1.

Multi-level Analyses

Since both in theory as in our data individuals are nested within countries, we use multi-level techniques (Snijders and Bosker, 1999). As the dependent variables approximate continuous measurement levels, we employ linear estimation techniques using models that are designed for normally distributed dependent variables.[12] We set out with estimating empty models for all seven dependent variables (Table 3), on the basis of which we conclude to what extent there is significant variation at both the individual and country level. In subsequent steps (Tables 4 and 5, models 1–4) we first include education, and then the other independent individual variables. Reduction in the impact

Table 1 Descriptive statistics, 28 countries, $N = 23{,}977$ (based on independent variables only)

	Minimum	Maximum	Mean
Dependent variables			
Meeting with friends	1.00	6.00	4.43
Meeting with colleagues	1.00	6.00	2.61
Meeting with neighbours	1.00	6.00	3.36
Giving informal help	0.00	8.00	2.43
Donations to organizations	0.00	11.00	0.61
Memberships of organizations	0.00	11.00	0.65
Participation in organizations	0.00	13.00	0.39
Individual characteristics			
Education	1.00	70.00	18.42
Male	0.00	1.00	0.44
Female	0.00	1.00	0.56
Age	0.00	8.40	3.46
Age squared	0.00	70.56	14.71
Professional	0.00	1.00	0.06
Other white collar	0.00	1.00	0.26
Skilled manual	0.00	1.00	0.11
Unskilled manual	0.00	1.00	0.04
Self employed	0.00	1.00	0.06
Housekeeping	0.00	1.00	0.10
Unemployed	0.00	1.00	0.08
Retired	0.00	1.00	0.30
Married	0.00	1.00	0.67
Single	0.00	1.00	0.12
Divorced/separated	0.00	1.00	0.09
Widowed	0.00	1.00	0.11
Rural area	0.00	1.00	0.38
Small city	0.00	1.00	0.35
Large city	0.00	1.00	0.27
Country characteristics			
Educational expansion	−0.67	4.58	0.00
Income inequality	−1.44	2.46	0.00
Social security expenditure	−10.04	10.26	0.00
GDP	−56.98	152.02	0.00
Democratic history	−31.93	53.07	0.00
Cross level interactions			
Education × educational expansion	−38.84	320.56	4.40
Education × social security expenditure	−481.75	595.28	2.59

Source: Eurobarometer 62.2 (2004).

of education, and in the country level variance will be evaluated at this point (compositional differences). In a third step, we include the independent context variables, look at their effects, and again evaluate the reduction of the country level variance (contextual effects). In a fourth step, we include cross level interactions with education. But before we come to that, we first present descriptive information on overall levels of social capital within countries (Table 2).

Findings

Country Differences in Social Capital

Clearly, there is substantial variation between countries in average levels of formal and informal social capital. Maltese citizens meet least frequently with friends, Dutch citizens the most, and on a scale of 1–6 a difference of 1.7 (5.1−3.4) is substantial. For contact frequency with colleagues, again the Maltese score lowest, but this time the Latvian population has the highest average. Latvians meet most often with their neighbours (average score is 4.5), Hungarians least often (1.9). With regard to giving informal help Sweden is the highest scoring country (with an average of 3.3 on a scale of 0–8), while with 1.2 Portugal scores lowest. The Dutch on average donate to the highest number of organizations and in addition also actively participate in the most (2.0 and 0.8). Romanians on average score lowest on both occasions, with 0.07 and 0.12, respectively.

Table 3 summarizes differences between countries. In all cases the country level variance is significant (at least twice its standard error). The actual differences between countries that we presented in Table 2 are thus reflected in significantly high parameters. The intra country correlation considers this between country variance in relation with the between individual variance. Our models suggest that particularly for meeting with neighbours, donations to, and memberships of organizations, intra country correlations are relatively high.

Educational Attainment and Dimensions of Social Capital

In all cases educational attainment significantly affects individuals' level of social capital. The higher one's level of education, the more one meets with friends and colleagues, and the more informal help one gives. Higher educated people also donate to organizations more often, are more likely to be organization members, and also participate more often. There is one exception to this general finding: the higher educated have a lower contact frequency with their neighbours than lower educated people.

Table 2 Countries and their level of informal and formal social capital

	Meeting with friends	Meeting with colleagues	Meeting with neighbours	Giving informal help	Donations to voluntary organizations	Memberships of voluntary organizations	Involvement in voluntary organizations
Belgium	4.183	2.294	2.209	2.714	0.873	0.945	0.615
Denmark	4.740	2.562	3.086	3.175	0.846	1.762	0.603
West Germany	4.630	2.506	3.233	2.086	0.812	0.869	0.476
East Germany	4.258	2.403	3.260	2.149	0.588	0.527	0.431
Greece	4.875	2.808	4.100	1.807	0.350	0.285	0.278
Spain	4.136	2.484	2.287	2.150	0.198	0.339	0.226
Finland	4.359	2.813	2.774	2.638	1.085	1.039	0.652
France	4.465	2.341	2.439	2.616	0.753	0.750	0.498
Ireland	4.674	3.106	3.369	2.396	1.061	0.701	0.600
Italy	4.113	2.169	1.930	1.515	0.321	0.351	0.305
Luxembourg	4.554	2.473	2.465	2.504	1.767	1.614	0.678
The Netherlands	5.096	2.346	4.413	3.113	1.987	1.997	0.790
Austria	4.401	2.698	2.924	2.029	0.941	0.790	0.583
Portugal	4.674	3.254	4.318	1.169	0.296	0.208	0.135
Sweden	4.912	2.686	3.103	3.264	0.920	2.048	0.743
Great Britain	4.568	2.430	3.148	2.753	0.736	0.763	0.485
Cyprus	4.617	2.722	4.163	2.082	0.700	0.422	0.344
Czech Republic	4.395	2.758	4.039	2.750	0.232	0.324	0.258
Estonia	3.676	2.622	2.548	2.250	0.322	0.371	0.335
Hungary	3.978	2.426	1.919	1.686	0.305	0.141	0.159
Latvia	4.413	3.270	4.538	3.190	0.187	0.193	0.248
Lithuania	4.455	2.787	4.612	2.518	0.219	0.150	0.167
Malta	3.360	1.572	3.090	1.795	1.236	0.402	0.329
Poland	3.943	2.533	3.049	2.093	0.199	0.224	0.237
Slovakia	4.644	2.993	4.569	3.237	0.229	0.331	0.318
Slovenia	4.716	2.724	4.337	2.958	0.672	0.677	0.418
Bulgaria	4.621	2.866	4.080	2.344	0.176	0.114	0.127
Romania	4.219	2.060	3.524	2.160	0.074	0.095	0.121

Source: Eurobarometer 62.2 (2004).

Including education at the independent side of the equation does not lead to sharp reductions of the individual level variance in social capital (compare the individual level variances in Table 3 with the individual level variances in Tables 4 and 5 of the Models M1). The national level variance does, however, drop strongly in some cases: for giving informal help by 24 per cent, for membership of organizations by 16 per cent, and for participation in organizations by 18 per cent. Country differences in these forms of social capital are, therefore, to a substantial extent due to compositional differences with regard to education.

After taking account of other relevant individual level determinants in Models M2 (Tables 4 and 5), in all instances the direct relationship of educational attainment with social capital weakens. The relationship weakens for meeting with friends, colleagues, neighbours, and giving help by 59, 75, 71, and 54 per cent, respectively, and for the formal indicators by 18, 17, and 21 per cent. Nevertheless, for all indicators, significant independent effects of educational attainment remain.

Including these additional independent individual variables does not lead to particularly sharp reductions in both individual and country level variances, except for meeting with colleagues (15 and 27 per cent, respectively). In all, the findings do corroborate the argument that higher educated individuals participate more in formal as well as informal social activities. However, there is one notable exception: we do find that the lower educated consort more with their neighbours than the higher educated, as proposed in the localist orientation hypothesis. Hence, these results are much in line with the *uniform educational effect hypothesis* and the *localist orientation hypothesis*.

Table 3 Empty models; fit, individual level variance, country level variance, and intra country correlation

	−2 Log L	Individual level variance $^{e}0ij$	Standard error	Country level variance $^{u}0ij$	Standard error	Intra country correlation $^{u}0ij/(^{u}0ij + {}^{e}0ij)$
Meeting with friends	83,922	2.016	0.019	0.133	0.036	0.062
Meeting with colleagues	79,837	2.676	0.026	0.118	0.032	0.042
Meeting with neighbours	93,361	3.035	0.028	0.690	0.185	0.185
Giving informal help	97,613	3.484	0.032	0.287	0.078	0.076
Donations to organizations	62,896	0.812	0.007	0.224	0.060	0.216
Memberships of organizations	66,550	0.946	0.009	0.309	0.083	0.246
Participation in organizations	53,821	0.556	0.005	0.038	0.010	0.064

Source: Eurobarometer 62.2 (2004).

National Context and Dimensions of Social Capital

We hypothesized that a country's level of educational expansion stimulates all forms of social capital, or reduces informal social capital, while it leads to increasing levels of formal social capital. If we look at average effects (Models M3), we find that the more educationally expanded countries are, the higher the level of giving informal help, and membership of organizations, but the less one donates to voluntary organizations. There is no consistent pattern in these educational expansion effects, so that both *the positive* and *differential educational expansion effect hypothesis* must be rejected.

For welfare state expansion we deduced a *crowding out-* and *social solidarity-hypothesis*, the first predicting lower levels of social capital as welfare states expand, the latter predicting higher levels. Again the results are mixed. On the one hand, the higher the level of social security expenditure, the less one gives informal help. This corroborates the crowding out-hypothesis. On the other hand, social security expenditure also leads to higher levels of organization memberships, which contradicts the crowding-out hypothesis. For he other aspects of social capital, the relationships do not reach significance. Overall, there is no support for either the crowding-out, or the social solidarity-hypothesis.

Income inequality, a nation's wealth, and democratic history often prove to be important predictors of particularly formal social capital. The higher the level of income inequality, the less one gives informal help, donates to organizations, and volunteers for organizations. Furthermore, the wealthier a country is, and the longer its democratic history, the higher a country's level of formal social capital. Since these control variables substantially overlap our educational expansion and welfare state indicators, accounting for them at the national level has certainly resulted in more precise estimations of the effects of educational expansion and the level of social security expenditure.

For all social capital indicators it turns out that including contextual determinants led to substantial, sometimes impressive reductions of the country variance. For the informal indicators variances were reduced by 19, 27, 16, and 34 per cent, respectively, for formal social capital by 72, 81, and 86 per cent.

Are Educational Effects Conditioned by Educational Expansion and Social Security Expenditure?

How does the effect of educational attainment vary across varying national contexts of educational expansion and social security expenditure? It turns out that six out of seven interactions of education with educational expansion are significant. The more countries have gone through processes of educational expansion, the weaker is the relationship between education and meeting with colleagues, meeting with neighbours, giving informal help, donating to organizations, membership of organizations, and involvement in organizations. In other words, in countries with many highly educated individuals the difference in social capital between the lower and higher educated is smaller, which unequivocally supports the *recruitment through networks-hypothesis* and contradicts *the negative homogenization-hypothesis*.

The relationship between education and social capital also differs under conditions of the welfare state regime, but far less consistently than was the case for educational expansion. The more a country spends on social security, the weaker is the relationship between education and contact frequency with one's neighbours.

Table 4 Informal social contact and giving informal help regressed on education, individual level control variables, country characteristics, and cross level interactions, unstandardized coefficients

	Meeting with friends				Meeting with colleagues				Meeting with neighbours				Giving informal help			
	M1[a]	M2[a]	M3[a]	M4[a]	M1[b]	M2[b]	M3[b]	M4[b]	M1[b]	M2[b]	M3[b]	M4[b]	M1[b]	M2[b]	M3[b]	M4[b]
Individual characteristics																
Education	**0.017**	**0.007**	**0.007**	**0.007**	**0.040**	**0.010**	**0.010**	**0.013**	**−0.035**	**−0.010**	**−0.010**	**−0.014**	**0.048**	**0.022**	**0.022**	**0.024**
Male (ref)																
Female		**−0.211**	**−0.211**	**−0.211**		**−0.319**	**−0.320**	**−0.318**		−0.007	−0.008	−0.011		**0.153**	**0.153**	**0.155**
Age		**−0.362**	**−0.362**	**−0.362**		**−0.167**	**−0.167**	**−0.166**		**0.150**	**0.150**	**0.149**		0.006	0.006	0.006
Age squared		**0.023**	**0.023**	**0.023**		0.005	0.005	0.005		**−0.016**	**−0.016**	**−0.016**		**−0.033**	**−0.033**	**−0.033**
Professional (ref)																
Other white collar		**−0.121**	**−0.122**	**−0.123**		**−0.232**	**−0.229**	**−0.221**		0.010	0.011	−0.007		***−0.091***	***−0.092***	***−0.088***
Skilled manual		**−0.179**	**−0.179**	**−0.179**		**−0.175**	**−0.173**	**−0.159**		**0.244**	**0.243**	**0.217**		**−0.400**	**−0.402**	**−0.394**
Unskilled manual		**−0.171**	**−0.172**	**−0.172**		**−0.379**	**−0.376**	**−0.361**		**0.280**	**0.280**	**0.255**		**−0.402**	**−0.404**	**−0.396**
Self employed		−0.074	−0.075	−0.075		−0.061	−0.060	−0.049		**0.268**	**0.268**	**0.249**		**−0.205**	**−0.206**	**−0.200**
Housekeeping		**−0.199**	**−0.201**	**−0.200**		**−1.311**	**−1.310**	**−1.294**		**0.512**	**0.512**	**0.487**		**−0.409**	**−0.411**	**−0.403**
Unemployed		−0.072	−0.073	−0.073		**−1.182**	**−1.181**	**−1.167**		**0.413**	**0.412**	**0.386**		**−0.334**	**−0.335**	**−0.328**
Retired		***0.086***	***0.086***	***0.085***		**−1.009**	**−1.009**	**−0.999**		**0.495**	**0.498**	**0.478**		**−0.269**	**−0.270**	**−0.265**
Married (ref)																
Single		**0.409**	**0.409**	**0.408**		**0.275**	**0.275**	**0.275**		−0.039	−0.038	−0.039		−0.023	−0.023	−0.024
Divorced		**0.253**	**0.253**	**0.253**		**0.143**	**0.143**	**0.142**		−0.051	−0.050	−0.051		−0.011	−0.010	−0.011
Widow		**0.233**	**0.234**	**0.233**		0.014	0.013	0.015		**0.165**	**0.164**	**0.159**		**−0.163**	**−0.163**	**−0.162**
Rural area (ref)																
Small city		−0.029	−0.029	−0.028		0.006	0.006	0.003		**−0.412**	**−0.412**	**−0.405**		0.019	0.019	0.018
Large city		**−0.067**	**−0.066**	**−0.066**		**−0.072**	**−0.073**	**−0.076**		**−0.676**	**−0.676**	**−0.670**		**0.064**	**0.065**	**0.063**
Country characteristics																
Educational expansion			0.043	0.056			0.043	***0.140***			0.094	0.023			**0.216**	**0.278**
Social security expenditure			0.017	0.013			−0.015	−0.018			−0.009	−0.038			***−0.027***	***−0.031***
Income inequality			−0.021	−0.020			0.034	0.036			−0.013	−0.012			**−0.151**	**−0.149**
GDP			0.001	0.001			0.002	0.002			−0.005	−0.005			0.001	0.001
Democratic history			0.000	0.000			***−0.005***	***−0.005***			−0.004	−0.004			0.000	0.000
Cross level interactions																
Education × educational expansion				−0.001				**−0.004**				***0.003***				***−0.003***
Education × social security expenditure				0.000				0.000				**0.002**				0.000
Constant	**4.105**	**5.305**	**5.305**	**5.303**	**1.855**	**3.610**	**3.605**	**3.545**	**3.976**	**3.257**	**3.277**	**3.378**	**1.515**	**2.612**	**2.618**	**2.586**
Number of observations	23,683	23,683	23,683	23,683	20,862	20,862	20,862	20,862	23,611	23,611	23,611	23,611	23,861	23,861	23,861	23,861
−2 log likelihood	83,846	82,328	82,322	82,322	79,554	76,244	76,235	76,227	93,152	91,975	91,970	91,944	97,256	95,884	95,873	95,870
Individual level variance	**2.009**	**1.884**	**1.884**	**1.884**	**2.640**	**2.253**	**2.253**	**2.252**	**3.008**	**2.861**	**2.861**	**2.858**	**3.433**	**3.241**	**3.241**	**3.240**
Country level variance	**0.127**	**0.124**	**0.100**	**0.100**	**0.122**	**0.089**	**0.065**	**0.066**	**0.687**	**0.702**	**0.589**	**0.589**	**0.218**	**0.238**	**0.158**	**0.155**

Source: Eurobarometer 62.2 (2004). Bold values, coefficient is at least twice its standard error. Bold and Italic values, country effects and interactions are in between 1.5 and twice its coefficient's standard error.

[a]*Education does not affect meeting with friends linearly, the biggest gap seems to be between the primary and lower secondary educated. The difference between the lower secondary, higher secondary, and tertiary educated is negligible. For economical reasons, particularly regarding the cross level interactions, we decided to calculate with the continuous education measurement.*

[b]*Education affects social capital linearly.*

Table 5 Formal social capital regressed on education, individual level control variables, country characteristics, and cross level interactions, unstandardized coefficients

	Donations to voluntary organizations				Memberships of voluntary organizations				Involvement in voluntary organizations			
	M1[a]	M2[a]	M3[a]	M4[a]	M1[a]	M2[a]	M3[a]	M4[a]	M1[a]	M2[a]	M3[a]	M4[a]
Individual characteristics												
Education	**0.022**	**0.018**	**0.018**	**0.021**	**0.036**	**0.030**	**0.030**	**0.031**	**0.019**	**0.015**	**0.015**	**0.017**
Male (ref)												
Female		***0.023***	***0.023***	***0.026***		**−0.064**	**−0.063**	**−0.063**		**−0.070**	**−0.069**	**−0.067**
Age		**0.133**	**0.133**	**0.135**		**0.105**	**0.105**	**0.106**		**0.093**	**0.094**	**0.095**
Age squared		**−0.013**	**−0.013**	**−0.013**		**−0.009**	**−0.009**	**−0.009**		**−0.011**	**−0.011**	**−0.011**
Professional (ref)												
Other white collar		**−0.161**	**−0.161**	**−0.150**		**−0.302**	**−0.303**	**−0.304**		**−0.146**	**−0.146**	**−0.140**
Skilled manual		**−0.351**	**−0.352**	**−0.332**		**−0.490**	**−0.490**	**−0.489**		**−0.253**	**−0.253**	**−0.243**
Unskilled manual		**−0.399**	**−0.399**	**−0.379**		**−0.576**	**−0.577**	**−0.576**		**−0.303**	**−0.305**	**−0.295**
Self employed		**−0.149**	**−0.150**	**−0.135**		**−0.245**	**−0.247**	**−0.246**		**−0.204**	**−0.205**	**−0.198**
Housekeeping		**−0.340**	**−0.340**	**−0.319**		**−0.505**	**-0.507**	**−0.504**		**−0.256**	**−0.261**	**−0.250**
Unemployed		**−0.368**	**−0.368**	**−0.351**		**−0.512**	**−0.513**	**−0.514**		**−0.304**	**−0.303**	**−0.294**
Retired		**−0.295**	**−0.295**	**−0.281**		**−0.391**	**−0.392**	**−0.393**		**−0.218**	**−0.217**	**−0.210**
Married (ref)												
Single		**−0.063**	**−0.063**	**−0.065**		−0.004	−0.004	−0.006		−0.015	−0.015	−0.016
Divorced		**−0.096**	**-0.096**	**−0.098**		**−0.071**	**−0.071**	**−0.072**		**−0.055**	**−0.054**	**−0.055**
Widow		**−0.103**	**−0.103**	**−0.100**		**−0.083**	**−0.083**	**−0.084**		***−0.034***	***−0.033***	***−0.032***
Rural area (ref)												
Small city		−0.018	−0.018	−0.022		0.001	0.001	0.002		***−0.018***	***−0.019***	***−0.021***
Large city		**−0.054**	**−0.053**	**−0.059**		***−0.028***	***−0.028***	***−0.029***		**−0.052**	**−0.052**	**−0.055**
Country characteristics												
Educational expansion			***−0.080***	0.070			**0.134**	**0.212**			0.011	***0.040***
Social security expenditure			−0.007	−0.014			***0.015***	−0.007			0.002	0.005
Income inequality			***−0.067***	***−0.063***			−0.043	−0.039			***−0.017***	−0.016
GDP			**0.005**	**0.005**			**0.005**	**0.005**			**0.002**	**0.002**
Democratic history			**0.007**	**0.007**			**0.005**	**0.005**			**0.003**	**0.003**
Cross level interactions												
Education×educational expansion				**−0.007**				**−0.004**				**−0.002**
Education×social security expenditure				0.000				**0.001**				0.000
Constant	**0.243**	**0.350**	**0.328**	**0.245**	0.001	**0.315**	**0.300**	**0.291**	0.058	**0.232**	**0.224**	**0.185**
Number of observations	23,861	23,861	23,861	23,861	23,861	23,861	23,861	23,861	23,861	23,861	23,861	23,861
−2 log likelihood	62,579	62,083	62,047	61,986	65,818	65,232	65,186	65,155	53,489	53,119	53,070	53,054
Individual level variance	**0.801**	**0.785**	**0.785**	**0.783**	**0.918**	**0.895**	**0.895**	**0.894**	**0.548**	**0.540**	**0.540**	**0.540**
Country level variance	**0.215**	**0.209**	**0.058**	**0.057**	**0.259**	**0.254**	**0.048**	**0.045**	**0.031**	**0.029**	**0.004**	**0.004**

Source: Eurobarometer 62.2 (2004). Bold values, coefficient is at least twice its standard error. Bold and Italic values, country effects and interactions are in between 1.5 and twice its coefficient's standard error.

[a]*Education affects social capital linearly.*

However, higher levels of social security expenditure also result in a stronger effect of education on voluntary organization membership. In all, the results are rather poor to support the *privileged people take over charity hypothesis*.

Conclusions

In this contribution we aimed at increasing our knowledge of the effects of educational attainment on participation in formal and informal social activities by performing multi-level analyses on 28 nations. We set out to determine the bivariate and net relationships at the individual level between education on the one hand and contact frequency with friends, colleagues, and neighbours, giving informal help (informal social capital), and donations to, membership of, and participation in organizations (formal social capital) on the other. After that, we added educational expansion and social security expenditure at the contextual level, and estimated cross level interactions between these contextual characteristics and individual educational attainment.

In order to answer our questions, we deduced a uniform education effect hypothesis, a localist orientation hypothesis, and a differential education effect hypothesis. The first stated that education positively affects all indicators of social capital, the second predicted higher levels of contact frequency with neighbours for the lower educated, and the third argued that higher educated people have higher levels of formal social capital, while the lower educated have higher levels of informal social capital. We find that the lower educated participate less in all types of formal and informal activities, *except* when it comes to meeting one's neighbours. The relationship between education and social capital does, therefore, not follow the formal versus informal dimension. We argued that the higher educated might (wish to) perpetuate their status by investing in the publicly visible collective good (formal social capital), while the lower educated, as a result of a lack of human resources, compensate by investments in informal social circuits. Our data show that it is certainly not the case that the lower educated invest more in affectionate informal ties.

The lower educated visit their neighbours more often. It seems to be the case that the lower educated are particularly focused on their local surroundings and on social networks that are physically close. They prefer a close neighbour to a far friend, and fill their spare time by informally interacting with street residents. Since neighbourhoods and streets often are economically segregated and thus neighbours are likely to have similar attitudes, we might expect that within these close neighbourhood networks the lasting effects of (a lack of) education on for instance (in)tolerance are reinforced.

The higher educated score higher on all indicators of social capital. We proposed that educational differences in socialization is likely to account for this pattern. We proposed that in comparison with lower educated people, the higher educated are more likely, in adolescence and adulthood, to internalize the dominant norm of dedication to the collective good, so that at their parents' home, at school, and within their social networks, they are more likely to be stimulated to participate in formal and informal social activities.

Here, we must mention that we used general theories to derive our hypotheses, but did not consider each single indicator separately to refine these theories. This resulted from our focus on the relationship between education and social capital. It is clear, however, that every indicator of social capital has its unique properties. Furthermore, we were unable to assess the empirical validity of supposedly underlying mechanisms through intermediary variables (such as dedication to the collective good, localism, and networks). In all, this implies that future research should look for explanations by making use of more specific and refined theories and data.

Our analyses at the contextual level showed significant variation between countries in the levels of all seven aspects of social capital. Based on our theoretical perspective at the individual level, we derived alternative hypotheses on the extent to which educational expansion might affect social capital. Since we know now that education uniformly affects social capital positively at the individual level (except for visiting neighbours), it seems most likely to expect uniform and positive effects of educational expansion. However, only three out of seven effects proved to be significant: these were both positive and negative. The results showed that higher levels of educational expansion increase both informal social support (giving help) and membership of voluntary organizations, but decrease donations to voluntary associations. Therefore, we have to conclude that this explanation is not satisfying.

It is interesting, however, that educational expansion positively affects membership of organizations, but negatively affects donations to organizations. Had we clustered indicators of formal and informal social capital, we would not have found that this contextual characteristic differentially affects two different indicators of the same latent construct.

States that spend much on social security are often assumed to crowd out participation in social networks, as the state is supposed to take over its

supporting function. Insofar, as effects of social security expenditure were significant, results were again mixed. We found that in countries where the state spends much on social security, the average level of giving informal help is lower than in states with a lower level of social security expenditure. The average level of voluntary organization membership, however, is higher. But as a whole our indicator of welfare state expansion does not seem to have a strong influence on the way that citizens of these countries behave in their formal and informal social life, and certainly not in a consistent pattern.

Our final step tied the individual educational attainment effect on social capital to a nation's educational expansion and social security expenditure. The effect of education does differ somewhat under different welfare state conditions, but only in two out of seven times significantly, and also not consistently. We found unsatisfying and inconsistent main effects of welfare state expansion on social capital, and in addition the conditional effect of the welfare state context on the relationship between education and social capital does not help us to understand how national context conditions individual behaviour.

For the level of educational expansion, however, we can come to more robust conclusions. One line of reasoning was that in educationally expanded countries socially inactive individuals are more easily motivated and recruited by a high number of higher educated people. This implies that in nations where many people attain high educational levels, formerly inactive lower educated individuals are likely to be in networks where they interact with higher educated people, who in turn stimulate them to take up formal and informal social activities. The other argument was that in educationally expanded countries the social distance between higher and lower educated people might be larger, which results in a socially isolated group of lower educated people, refraining from all kinds of social activities. This last argument was not at all supported by empirical evidence. To the contrary, in six out of seven cases, the relationship between education and social capital is weaker in countries with a high level of educational expansion. This suggests that an unintended but positive by-effect of educational expansion is that its positive consequences spill over to social groups that on average have little social capital.

Notes

1. In addition, we also include a nation's wealth, income inequality, and being a former communistic regime, to take account for unobserved heterogeneity at the country level as much as possible.
2. However, the estimations of their welfare state effects were based on one-level linear regression models, as a result of which the significance tests of their context effects were based on all individual cases, in stead of the number of countries in their study.
3. In this article, informal social capital is solely based on indicators that exemplify contact *frequency*. This can considered to be a lacuna, since welfare state expansion might influence social contact *intensity* differently (see for instance Albertini *et al.*, 2007). But since the data do not contain contact intensity measures, this theoretical progress cannot be made in this article.
4. As religious involvement strongly predicts volunteering, secularization is often seen a profound driving force behind the erosion of formal social capital (Ruiter and De Graaf, 2006). However, the Eurobarometer data do not contain religious involvement at the individual level, which makes it dangerous to include secularization at the national level. This means that we have to postpone the actual empirical test of the effect of secularization. We consider this to be a serious lacuna, even more so because controlling for religiosity at both the individual and the country level is important for a net estimation of other individual and national effects.
5. These are Belgium, Denmark, West Germany, East Germany, Greece, Spain, Finland, France, Ireland, Italy, Luxemburg, the Netherlands, Austria, Portugal, Sweden, Great Britain, Northern Ireland, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, and Romania. We excluded Northern Ireland because of missing information at the country level.
6. Luxembourg, Cyprus, and Malta.
7. For more detailed information see: http://ec.europa.eu/public_opinion/archives/ebs/ebs_221_en.pdf
8. Factor analyses (results not shown) nevertheless indicate that the three contact frequency indicators indicate one dimension, as well as the three indicators of formal social capital. Giving informal help does not uniformly load on one of these

dimensions, however. In the Appendix 1 a table is included that shows the overall correlations between the seven indicators of social capital.

9. On request, the corresponding author will provide models with dummies for education.
10. Due to data limitations we were not able to include other relevant individual level determinants, like religiosity, and household size. Level of income is more or less covered by one's employment situation, but nevertheless the estimation of the education effect might be somewhat biased.
11. For more information on all Eurostat indicators used, see the link 'long-term indicators' on the Eurostat homepage.
12. Nevertheless, some dependent variables, most notably the measurements of formal social capital, do not follow the normal distribution, so that estimations with models for poisson-distributed dependent variables would be more appropriate. The estimations of these models, however, do not provide different conclusions as compared with our presented estimations. And an advantage of using the normal distribution is that the package estimates variance components at both levels. Nevertheless, these since these variances are based on models that sometimes violate its assumptions to a certain extent, we approach them with care and only attach preliminary conclusions to our results.

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Appendix

Table A1 Correlations between indicators of social capital (*N* varies between 18,704 and 21,687)

	Meeting with friends	Meeting with colleagues	Meeting with neighbors	Giving informal help	Donations to voluntary organizations	Memberships of voluntary organizations	Participation in voluntary organizations
Meeting with friends	1.000						
Meeting with colleagues	0.354**	1.000					
Meeting with neighbors	0.291**	0.180**	1.000				
Giving informal help	0.201**	0.168**	0.106**	1.000			
Donations to organizations	0.075**	0.053**	0.005	0.199**	1.000		
Memberships of organizations	0.147**	0.099**	−0.001	0.221**	0.512**	1.000	
Participation in organizations	0.123**	0.129**	0.030**	0.191**	0.409**	0.603**	1.000

**$P < 0.01$.